DOCUMENT RESUME

ED 078 091 TM 002 911

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TITLE Application of the National Assessment of Educational Progress Philosophy in San Bernardino City Unified School District.
PUB DATE 73
NOTE 11p.; Paper presented at Annual Meeting of American Educational Research Association (New Orleans, Louisiana, February 25-March 1, 1973)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Academic Achievement; Community Control; *Criterion Referenced Tests; *Curriculum Development; Educational Accountability; *Educational Objectives; *Evaluation Techniques; Models; Program Descriptions; *Student Evaluation

ABSTRACT

the steps taken by a large urban school district to develop and implement an objectives-based curriculum with criterion-referenced assessment of student progress are described. These steps include: goal setting, development of curriculum objectives, construction of assessment exercises, matrix sampling in test administration, and reporting of results. The model provides for local control of educational objectives with credible accountability to the people for instructional results. (CK)

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APPLICATION OF THE NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS PHILOSOPHY IN SAN BERNARDINO CITY UNIFIED SCHOOL DISTRICT

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BACKGROUND

This paper describes the steps taken by a large urban school district to develop and implement an objectives-based curriculum with criterion-referenced assessment of student progress.

The program was prompted by a desire to help the school district be more responsive to rapidly changing student needs. It was recognized that student needs vary from time-to-time and place-to-place and that no standardized program could be expected to be effective in moving all students toward educational goals. Rather, it was essential to constantly adapt the curriculum to different student backgrounds and learning styles.

In order to adapt the curriculum to changing circumstances, staff members needed (1) the freedom to change their instructional strategies and (2) the information to determine which instructional strategies are effective in achieving objectives. This paper is specifically concerned with how one local school district developed a program to give staff the freedom to be responsible for student learning.

RELATED PROJECTS

The effort of City Schools to develop an objectives-based curriculum with criterion-referenced assessment of student progress is analogous to the Education Commission of the States' National Assessment of Educational Progress. NAEP has involved students, teachers, curriculum experts, and laymen in setting objectives for reading, math, social studies, science, and citizenship. Objectives have been stated for nine year olds, thirteen year olds, seventeen year olds, and adults. Exercises have been constructed to assess students' skill in mastering the objectives. The exercises have been administered to a nationwide sample of students and adults, and the results have been reported for each age group in each area of emphasis. This information is presented to lay and professional groups for examination and comments regarding appropriate educational priorities.

Similarly, the development of an objectives-based curriculum with criterion-referenced assessment of student progress can give local Board members and community members the information necessary for setting educational priorities. These priorities can provide general direction for instructional activities. Staff members can have the freedom to apply their professional training in developing and implementing instructional programs within priority areas.

The similarities between the City Schools' developmental effort and NAEP's thrust led to a cooperative effort in the spring of 1972. NAEP consultants worked with City Schools' teachers in setting objectives and constructing assessment exercises. The consultants offered advice in developing a matrix sample to effectively and efficiently assess student progress. City Schools' personnel followed through by involving a variety of groups in commenting on educational results. The results in City Schools have led to the sort of educational dialogue envisioned by the Education Commission of the States.

STEPS IN DEVELOPING A RESPONSIVE CURRICULUM

Overview

The City Schools began the developmental process with goal-setting in the spring of 1971 and followed up with the establishment of curriculum objectives in the early spring of 1972. Exercises were constructed to assess student progress on selected objectives in the late spring of 1972, and student skills in performing the tasks specified in the exercises were assessed in May of 1972. A report on student mastery of curriculum objectives in the fall of 1973 led to the establishment of educational priorities for the 1973-74 school year.

More specifically, these steps included:

Goal Setting

Members of the San Bernardino Board of Education launched the developmental program in October, 1970 by scheduling a series of workshop sessions for the purpose of identifying goals of education. Tentative statements of eight educational goals ranging from, "Students will be able to appreciate the fine arts" to "Students will be able to apply the principles of mathematics," were developed and distributed to all secondary students, staff members, and other groups potentially interested in education in San Bernardino. These groups were invited to make suggestions regarding deletions, revisions, and additions. A final workshop session was held to incorporate the resulting suggestions in the final statement of goals. These goals, summarized in Table I, were approved by the Board in July, 1971.

TABLE I

GOALS OF EDUCATION

I.	Students will be able to express their ideas and understand the ideas of others.	V.	Students will establish sound health habits.
II.	Students will be able to apply the principles of mathematics in their everyday life and in accordance with the demands of their career.	VI.	Students will develop and maintain high standards of citizenship.
III.	Students will be able to appreciate the fine arts.	VII.	Students will acquire a fundamental understanding of the social sciences.
IV.	Students will be prepared to enter a vocation or career.	VIII.	Students will acquire a general background in the natural sciences.

Development of Curriculum Objectives

A Curriculum Task Force composed of twenty, highly respected teachers on full released time used the eight goals as a framework for articulating reasonable expectations of student progress in each goal area at grades 3, 6, 9, and 12. These teachers had been in the classroom the previous semester and were considered well qualified to make judgments regarding reasonable expectations for student progress. They stated curriculum objectives for each cell in the matrix illustrated in Table II.

TABLE II
CURRICULUM OBJECTIVES MATRIX

Grade Level \ Goals	I Communi-cations	II Math	III Fine Arts	IV Careers	V Health	VI Citizen-ship	VII Social Studies	VIII Natural Science
12th Grade								
9th Grade								
6th Grade								
3rd Grade								

In the goal area of language arts, the Teacher Task Force stated over 600 objectives. Some of these objectives are reproduced in Table III. Similarly, in social studies the Teacher Task Force stated 200 objectives. Some of these are also seen in Table III. A total of approximately 1800 objectives gave substance to the formulae provided by the eight goals.

An effort was made to involve as many teachers as possible in reviewing and revising the curriculum objectives. The Teacher Task Force visited faculty rooms and attended department meetings to solicit comments regarding the objectives. As might have been expected, however, this effort met with some coolness and, in general, did not generate much interest.

Construction of Assessment Exercises

The search for guidance in constructing instruments to measure student progress relative to the objectives led to association with the National Assessment of Educational Progress. NAEP consultants assisted the teachers in constructing exercises congruent with local needs. This proved to be a viable procedure for applying psychometric expertise to local problems. It was also valuable in developing staff skill in measurement. It should be noted, however, that, in the interest of maintaining the project as primarily a teacher effort, the judgments of teachers regarding practicality and reasonableness were weighed more heavily than psychometric sophistication.

TABLE III

EXAMPLES OF CURRICULUM OBJECTIVES

Language Arts

Reading

3rd - finds the main point of a paragraph

6th - differentiates between main point and supplementary details

9th - arrives at a general principle after examining details

12th - consider source of information for accuracy and appropriateness

Literature

3rd - describe story characters

6th - aware of development of a character

9th - describe character and setting

12th - aware that character develops out of conflict

Social Studies

3rd - given geographic and climatic conditions, pupil will illustrate probable shelter and clothing patterns

6th - given a list of behaviors, pupil will group them as either learned or inherited

9th - list ways a given society meets people's needs through geographical resources

12th - describe ways an individual might choose to influence public policy

Exercises were constructed to measure selected objectives at grades 3, 6, 9, and 12 at each of the eight goal areas. It required 10 weeks for the teachers to construct thirty-two subtests for an experimental criterion-referenced assessment battery. This provided for assessment of objectives at grades 3, 6, 9, and 12 in each goal area.

Scoring criteria were set for each item in the battery. This was accomplished by pilot testing potential exercises and resulted in a variety of modifications, revisions and, in some cases, well advised elimination. The most promising items were included in the criterion-referenced assessment battery.

Matrix Sampling in Test Administration

The District's strategy involving use of a sample to estimate District-wide student performance also coincided with the NAEP approach to assessment. In this case, the NAEP consultants advised District personnel in matrix sampling procedures. Test administration was made maximally efficient by sampling both students and test items. The population of 2,000 students at each grade level was sampled to achieve 200 students responding to each item. The sample of elementary pupils was chosen by randomly selecting Elementary Schools for inclusion in the project and then randomly selecting pupils at these schools. All secondary schools were included in the sample, with sampling of each student body.

The Teacher Task Force spent the latter part of May and part of June, 1972, organizing and administering the test battery. Tests were color-coded for each cell of the matrix. These tests were organized according to the matrix sampling design and collected into batteries for each grade level involved in the assessment.

The actual administration of the test battery involved advising principals of their possible involvement in the project and arranging for the most convenient testing times and places. The testing time for elementary pupils was one hour and the testing time for secondary pupils was two hours. This was accomplished with relative ease at the elementary and junior high school levels; however, a lesson was learned regarding the availability of high school seniors in May of their graduation year.

The Teacher Task Force administered and scored the tests in June of 1972. This led to added discoveries regarding both the practicality and ease of administering exercises that required special tape recordings of student responses. These exercises were much more difficult to administer and score than the standard paper-and-pencil exercises but the information gained was unusually helpful for describing student skills in affective areas.

Reporting of Results

The Teacher Task Force tabulated results in terms of percent of students meeting an established criterion for each item. It was possible, for example, to report the percent of third grade students who could add whole numbers or read a thermometer. Similarily, it was possible to report the percent of ninth graders who could write a school announcement

at least as good as a selected sample of student work. (See example in Figure 1.)

Figure I

COMMUNICATIONS - FUNCTIONAL WRITING

Interval Ninth Grade

CONCEPT: The mechanics of writing are functional to communication.

WRITING ANNOUNCEMENTS

Directions: Write an announcement for the school bulletin advertising a movie to raise money for student body funds. Be sure and include all necessary information to make the announcement clearly understood. In addition, your paper will be graded according to the following criteria:

1. Punctuation
2. Capitalization
3. Sentence structure

SAMPLE RESPONSES

"Acceptable" Response:

Attention! This coming Saturday, the 24th, is the day you've all been waiting for. A movie is being held in order to raise more money for the student body fund. The time of the movie is from 2:00 til 4:15. So, everyone come and enjoy the great entertainment and fun. See ya there!

Thirty percent of the papers were similar to the above response.

Note: Fourteen percent of the students surveyed made no response. One percent of the students responded with "don't know."

SAMPLE RESPONSES

"Unacceptable" Response:

"COME AND SEE THE Movie"
admission 50¢. Refreshments
"THE PLANET OF THE APES"

Thirty percent of the responses in the "unacceptable" category were comparable to the above response.

"Fair" Response:

Students:
There will be a movie
shown today after School.
It will be shown in the
Music room B2, from 2 to 5
O'clock. The price to get in
is 25¢ a ticket.

Twenty-five percent of the responses in the "fair" category were comparable to the above response.

A comprehensive report was prepared during June, 1972, detailing third, sixth, ninth, and twelfth grade student performance in each goal area. The report was organized into nine chapters, one reporting student performance in each goal area, and one with teacher comments regarding the project.

IMPLICATIONS OF THE PROJECT

In accordance with the NAEP's philosophy, the District distributed copies of the report to Board Members, students, teachers, and parent groups for comments and suggestions regarding both the pilot project and implications for District-wide instructional priorities. The report was presented to Board Members in January, 1973.

The Board Members responded by commenting on the commonsense nature of the objectives. They also gained insight regarding the distinction between norm-referenced and criterion-referenced reporting of student progress. It became apparent that both types of reports were important to Board Members.

In a following meeting the Trustees initiated a discussion of instructional priorities. They considered norm-referenced test data and criterion-referenced test data. They expressed concern with scores on norm-referenced test data, but in considering their responsibility for setting instructional priorities, their attention focused on the Teacher Task Force reports. They discussed the data and, in a subsequent meeting, settled on the four C's - comprehension, composition, computation, and careers - as instructional priorities for the 1973-74 school year.

The administration was asked to work with staff members in establishing reasonable standards of pupil progress in each of these priority areas. Staff members were to use the existing curriculum objectives as a starting point for this objective setting process. Also, staff members were to prepare exercises for assessing student mastery of objectives.

The Trustees formally approved the following resolution:

> "BE IT RESOLVED that this Board of Education adopt a career concept of education as a new thrust of education in this school district.
>
> "BE IT FURTHER RESOLVED that the career concept of education encompassing the 5 C's be developed by the administration and teachers and be implemented on an individual school basis.
>
> "BE IT ALSO RESOLVED that the administration and teachers be directed to present plans for implementation with achievement expectations at grades 3, 6, 9, and 12, and appropriate assessment procedures involving norm-referenced tests, criterion-referenced tests and other procedures as required to reflect student progress in mastering objectives.
>
> "BE IT ALSO RESOLVED that the career concept in education should be carried as a thrust in adult programs as well; thereby making a total careers commitment to this community."

The Board Members stated their recognition that Board Members need to be responsible for setting priorities, while staff members are responsible for defining and implementing the instructional program to attain desired results. This would suggest that an environment had been created in which staff members could have the freedom to adjust their instructional strategies to changing students' needs and be responsible for students' learning.

Taking more of an insiders view, the project can be looked upon as part of a staff development program designed to focus attention on intended instructional results. The curriculum objectives provide models for schools to use in developing objectives-based instruction at the school level. The criterion-referenced assessment battery similarly provides examples of assessment techniques. In this manner staff members begin to acquire the measurement skills necessary for regularly collecting valid information regarding what instructional strategies are effective in helping students master objectives.

The administration has encouraged principals to work with their staff members in establishing school objectives congruent with District priorities. The responsibility has been placed on local schools to develop programs consistent with their students' needs and congruent with District priorities. The principals have stated that working with staffs in defining appropriate school objectives gives them a vehicle for working cooperatively with teachers in improving the instructional program.

There is an additional implication of the project which deserves attention, particularly in view of the State of California's efforts to shift the burden of school finance from the local property tax to a combination of state-wide property income and sales taxes. One can speculate that as the state assumes more responsibility for school finance, it will begin to set rather specific state-wide expectations for student progress. This has the potential of conflicting with a deep-seated reverence for local control of education.

The San Bernardino model provides for local control of educational objectives with credible accountability to the people for instructional results. Local persons can establish objectives and identify locally, acceptable measures of student progress. The State Department of Education can maintain quality control of the assessment process by acting as an independent educational auditor to certify to the reliability and validity of testing techniques. In this manner, discrepancies between actual and expected student progress can be identified and become a subject for the scrutiny of professional and lay groups at both local and state levels. San Bernardino City Schools' experience suggests that discussion of educational results provides a valuable information base for setting educational priorities.

SUMMARY

San Bernardino's experience demonstrates how a local district can involve staff members in developing an objectives-based curriculum with criterion-referenced assessment of student progress. The program has given staff members the freedom to be responsible for results and seems to have forged a more comfortable and accountable relationship between staff members and the Board of Education. An opportunity has been provided for translating community priorities into accountable instructional programs.